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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,868	07/15/2003	Peter Frank	2105-00020	7775

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EXAMINER
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CYGAN, MICHAEL T

ART UNIT	PAPER NUMBER
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2855

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/619,868

Applicant(s)

FRANK, PETER

Examiner

Michael Cygan

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-17 is/are rejected.
- 7) ☒ Claim(s) 12 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 17 November 2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Baker (GB 2,029,005). Baker discloses the claimed invention, a level detector comprising transparent housing containing a plurality of light emitters and a plurality of detectors which receive internally reflected light from the emitters via the housing and through a control system determine liquid level, where each detector can receive light from multiple emitters and each emitter can send light to multiple detectors; where the readings of the detectors are based inherently on a difference between ambient (background) current and the increased current upon light reception; and where multiple sensors are operable to be checked for indication of immersion; see page 1, line 65 through page 2, line 27 and Figures 1-4.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (GB 2,029,005) in view of Khotyaints (SU 1372189 A, Derwent abstract). Baker teaches the claimed invention including sequential actuation and end-to-end structure (page 2 lines 1-24), except for use of a shift register circuit. Khotyaints teaches the use of shift register circuit in an optical liquid level device (Derwent abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a shift register circuit as taught by Khotyaints in the invention taught by Baker to control the device, since Khotyaints teaches the advantages of accuracy, speed, and productivity.

Claims 8-11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (GB 2,029,005) in view of Smith (US 4,956,560). Baker teaches the claimed invention except for the use of a calibration. Smith teaches the use of calibration of light sensors in a liquid level system; see column 6 line 68 through column 7 line 10. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a calibration as taught by Smith in the invention of Baker to calibrate the light emitter/reception paths, since this allows quick fill level judgments to be made automatically.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (GB 2,029,005) in view of Hastbacka (US 4,051,726). Baker teaches the

claimed invention except for the use of a straight housing profile. Hastbacka teaches a straight housing profile in an internal reflection optical level sensor; see Figure 2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a straight housing profile as taught by Hastbacka in the invention of Baker to calibrate the light emitter/reception paths, since this is stated in the abstract of Hastbacka to be a geometry causing total internal reflection when above liquid level and minimize internal reflection when immersed in the liquid.

#### ***Allowable Subject Matter***

Claims 12 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art neither discloses nor fairly teaches a level detector having the claimed structure and operable to determine dirtiness of part of the sensor using calibration data, ambient reading, and operational reading.

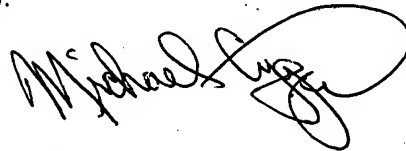
#### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lee (US 5,274,245) and Gooley (US 4,119,860) disclose liquid level sensors having multiple emitters illuminating a detector from a reflected signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Michael Cygan", with a large, stylized loop at the end.

Michael Cygan  
Primary Examiner  
Art Unit 2855